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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/627,597 | 07/28/2003 | Ruey-Yau Tzong | MR2349-954 | 4256 |
| 4586 | 7590 | 10/11/2005 | EXAMINER | |
| ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLICOTT CITY, MD 21043 | | | QI, ZHI QIANG | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2871 | |

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/627,597

Applicant(s)

TZONG ET AL.

Examiner

Mike Qi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (AAPA) in view of US 6,046,858 (Scott et al).

Regarding claims 1 and 3, AAPA discloses (paragraph 0005; Fig. 2) that a liquid crystal projection device using a ferroelectric liquid crystal (FLC) modulator comprising:

- a ferroelectric liquid crystal (FLC) panel (40a), (i.e., a FLC modulator) for receiving an incident light beam transmitting along an incident light path (such as incident light path 60a come from the light source 20a), and the incident light beam being modulated into an image light beam by the FLC panel (40a);
- the image light beam is reflected by the FLC panel (40a) along a reflection light path (such as reflection light path 70a);
- the incident light path and the reflection light path are situated at a non-zero angle;

(concerning claim 3)

- a light source (20a) for providing light beam;

- an optical lens module (30a) for receiving and projecting the light beam along an incident light path.

AAPA does not explicitly disclose that the incident light path and the reflection light path are situated at a non-zero angle of between 20 and 40 degrees.

Scott discloses (col.3, line 58 – col.4, line 8; Fig.3) that the incident light path (illumination path) and the reflection path (projection path) are situated at an angle of 24 degrees, such that in order to separate the incident path (illumination path) from the reflection path (projection path) so as to reduce the light loss and image distortion (col.2, lines 1-3). In the case where that claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. (see MPEP 2144.05 I.)

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal projection device of AAPA with the teachings of the incident light path (illumination path) and the reflection path (projection path) are situated at an angle of 24 degrees as taught by Scott, since the skilled in the art would be motivated for separating the incident light path from the reflection light path so as to reducing light loss and image distortion (see col.2, lines 1-3 and col.3, line 58 – col.4).

Regarding Claim 4, AAPA discloses (paragraph 0005; Fig. 2) that a projection lens (50a) disposed on the reflection light path (70a) for receiving and projecting the image light beams.

Regarding claim 6, AAPA discloses (paragraph 0005; Fig. 2) that the optical lens

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(optical lens module 30a) has an optical axis in parallel with the incident light path.

Regarding claim 7, AAPA discloses (paragraph 0005; Fig. 2) that the optical lens (optical lens module 30a) comprises a color plate (31a), a front lens (32a), an integrator unit (33a), a polarity conversion unit (34a), and a rear lens (35a), which are sequentially disposed along an optical axis for receiving the light beams, as a result, the light beams are modulated into light beams with different wavelengths (different color), and which are uniformed and polarized, because using such optical lens module.

Regarding claim 8, AAPA discloses (paragraph 0005; Fig. 2) that a color plate (31a) that is a color filter which must have red, green and blue color region (R/G/B) to form different colors of light.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA and Scott as applied to claims 1, 3-4 and 6-8 above, and further in view of US 6,624,862 B1 (Hayashi et al).

Regarding claim 5, AAPA and Scott teach the invention set forth above. AAPA and Scott lack that a lens disposed between the FLC modulator and the projection lens for receiving the image light beams from the FLC modulator and projecting the received image light beams to the projection lens.

Hayashi discloses (col.6, line 66 – col.7, line 33; Fig.1) that using condenser lens (8) which is disposed between the display panel (12) and the projection optical system (13), and the condenser lens (8) condenses the illumination light on the display panel as incident light, and directs the reflected light from the display panel to the projection optical system as projected light. Such structure is simple, excellent in efficiency and

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low cost, and using such condenser lens in such projector display to obtain a high contrast (col.5, lines 28-32).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to modify the liquid crystal projection device of AAPA and Scott with the teachings of arranging a lens between the FLC modulator and the projection lens as taught by Hayashi, since the skilled in the art would be motivated for achieving a simplified structure and efficiently using the lights and obtaining a high contrast display (see col.5, lines 28-32).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 3-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299.

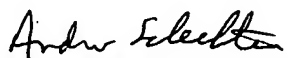
The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi
October 3, 2005


ANDREW SCHECHTER
PRIMARY EXAMINER